

Great Lakes Basin Commission

ANNUAL REPORT
Fiscal Year Ending June 30, 1971



The Great Lakes Basin Commission is a river basin commission under the enabling act, Public Law 89-80—

“Each river basin commission shall . . . submit to the Council and the Governor of each participating State a report on its work at least once each year. Such report shall be transmitted through the President to the Congress.”

To their Excellencies: The Governors of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin; and to the Water Resources Council for transmittal to the Congress through the President of the United States:

The Great Lakes Basin Commission, during the year ended June 30, 1971, continued its implementation of Congressional policy on water and related land resources in the Great Lakes Basin. To this end the Commission has encouraged all interested individuals and parties to participate in a comprehensive and coordinated approach to the conservation, development and utilization of such resources in the United States portion of the Basin.

The Annual Report for Fiscal Year 1971, submitted herewith, reviews Commission activities related to four basic responsibilities. These are:

- Serving as principal agency for the coordination of all water resource planning in the Basin.
- Preparing the basic comprehensive, coordinated, joint plan for Basin water and related land resources.
- Recommending a long-range schedule of priorities for resource-related programs and projects.
- Fostering additional studies necessary for preparation of the basic plan.

The Commission has maintained full awareness of its Great Lakes-St. Lawrence area as one of high concern to two Nations, eight States, one Province and numerous agencies. The Commission has been successful in progressing in its own tasks, particularly that of coordination, without impinging upon the authority of any Federal agency or State or its officials or the International Joint Commission of the United States and Canada.

On behalf of the Commission, I wish to express my gratitude for the continued support you have given to all our efforts.
For the Commission,



Frederick O. Rouse, Chairman

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"Each such commission . . . shall serve as the principal agency for the coordination of Federal, State, inter-state, local and nongovernmental plans for the development of water and related land resources in its area . . ."

—Public Law 89-80.

Coordination

The Great Lakes Basin Commission in fiscal year 1971 undertook numerous activities related to its coordination responsibility. Perhaps the most significant, because of potential impact on virtually all aspects of Great Lakes water resources management, was GLBC participation in United States-Canadian discussions and actions centering on boundary water matters.

The Commission was also represented in several multi-national meetings on water resource planning. This has proved valuable as a means of maintaining awareness of new trends, procedures, and techniques offering possible advantageous application in Great Lakes Basin planning.

Expectedly, however, coordination activities to which major time was given were those directly connected with ongoing planning for the Basin. This included, beyond coordination of the many agencies and parties engaged in Framework Study and other GLBC projects, coordination involving various regional, local, and special studies which will affect the Basin.

Summaries of these several activities follow.

International Joint Commission

The Great Lakes Basin Commission endorsed, in general, the International Joint Commission report on "Pollution of Lake Erie-Lake Ontario and the International Section of the St. Lawrence River." This report—urging a more comprehensive, multi-purpose, and coordinated approach recognizing all water uses on a long-range basis—was seen as an important first step toward achieving an acceptable level of water quality in the Great Lakes system.

The Great Lakes Basin Commission considers that direct representation of all affected States should be provided on the international water quality board proposed in the IJC report. In keeping with this concept, GLBC Chairman Frederick O. Rouse encouraged all States to participate fully in activities preparatory to the proposed international executive agreement that would implement report findings and recommendations.

Mr. Rouse was a member of the U.S.-Canadian Joint Working Group set up to consider governmental responses to the IJC report recommendations. He played a leading role in opening subgroup membership to State participation and urged all Basin States to take a vigorous interest in subgroup activity.

Reports of the subgroups and the Joint Working Group were substantially completed prior to the U.S.-Canadian ministerial meeting in Washington on June 10. Negotiations are expected to follow this meeting, and—after supporting actions by the States and Provinces at the second Great Lakes Environmental Conference, August 16-17, 1971—an executive agreement between the two nations will be signed.

The two governments contemplate a new reference to the IJC for water quality studies and action in the remaining boundary waters.

Great Lakes Environmental Conference, Toronto

Ontario's Prime Minister, John Robarts, called a Great Lakes Environmental Conference of Great Lakes States and Provinces, September 1970 in Toronto. The Canadian and U.S. Federal governments, Great Lakes Basin Commission, and Great Lakes Commission were also represented. Major attention focused on interjurisdictional ways of solving common pollution problems affecting Canadian and United States interests in the Great Lakes.

The State and Provincial conferees confirmed a "total commitment to achieve environmental quality in the Great Lakes." They urged Canada and the United States to "significantly strengthen the powers of the International Joint Commission" for this purpose, and recommended the IJC be given an expanded and overall role in matters of environmental quality. The proposed IJC role would include exchange of information, review of standards for uniformity in regulations, enforcement, surveillance, and reports on adequacy of pollution control programs.

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Coordination

An ad hoc action group of participating governments is being established to initiate and support such action. A second meeting of the conferees is planned for 1971.

Water Management Research Group, OECD

The Water Management Research Group of the Organization for Economic Cooperation and Development met jointly with the Great Lakes Basin Commission in July, 1970, at St. Clair, Michigan. This Group has members from most of the 21 OECD nations. The meeting at St. Clair was one of three sessions in North America, the others having been held at Washington, D.C., and Hamilton, Ontario.

In the joint sessions, GLBC Commissioners presented North American solutions to basic water management problems. Topics emphasized were: choice of approach, criteria, and definition of objectives in water management; procedures for choice of alternatives; multi-State jurisdictional problems; determination of administrative responsibilities among authorities; and integration of objectives of special interest groups into total water management programs. Also considered were: whether differences can be resolved by economic methods; how to agree on water resources management programs of benefit to whole region if some interest groups are seriously harmed; information transmission to appropriate decision-making persons; determination of who pays for water management.

The Water Management Research Group voiced surprise at the multiplicity of approaches for water resource planning and management in North America and especially in the United States. They also commented on the lack of uniform standards in resource management. The Commission cited reasons for this diversity—including the present dynamic situation regarding institutional arrangements for water resource management and the desire of people for arrangements tailored to their individual problems and to the existing organizations.

International Field Year on the Great Lakes

An International Field Year on the Great Lakes has been scheduled for Lake Ontario for the period April 1, 1972, through March 31, 1973, in connection with the International Hydrological Decade. The purpose of the field year is to obtain basic data to increase understanding of one of the world's largest fresh water lakes—and thereby increase knowledge applicable to all the Great Lakes.

United States leadership in the field year is assigned to the National Oceanic and Atmospheric Administration, Department of Commerce (NOAA). Canadian coordination is provided by the Canada Centre for Inland Waters in Burlington, Ontario, a facility of Canada's Department of the Environment.

GLBC members and staff have assisted NOAA in planning and coordinating this international effort for the first truly detailed look at one of the Great Lakes. The real benefits from this effort will be in improved management of the Lake Ontario basin, and the basins of the other Great Lakes as well. The beneficiaries will be the Canadians and Americans who live within the Great Lakes Basin.

Coordination with Other Studies

Northeast Ohio Water Resources Study

Ohio, in fiscal year 1971, completed 90 percent of its Northeast Ohio Plan with final decisions on project alternatives for regional solutions to water problems.

This planning effort has been closely coordinated with that of the Corps of Engineers and GLBC. As part of Ohio's regional planning, interim basin water quality plans were produced for all of Ohio's portion of the Lake Erie basin and are undergoing review and certification. Final regional plans will include fully developed basin water quality plans to meet Federal EPA regulations for 1973. Alternatives to the Grand River Reservoir for regional water control were explored by the Corps of Engineers with the Northeast Ohio Advisory Council.



Southeast Wisconsin River Basin Study, Type IV

The Coordinating Committee for this study accepted the GLBC staff's suggestions that the study be updated. The objectives are to reflect current thinking on environmental considerations and to consider water quality, fish, and wildlife, so that the resulting basin plan for water and related land resources would be more comprehensive.

Procedures and time and work requirements for the expanded needs of the study were reviewed by the Coordinating Committee in June 1971. An amended plan of work was drawn and submitted to the lead agency, the USDA Soil Conservation Service, for approval. Indications are that an extension will be granted. The Study, active since 1968, is expected to be completed by July 1, 1973.

Elkhart River Basin Study

At the request of the State of Indiana, the U.S. Department of Agriculture was authorized to make a cooperative Type IV investigation and survey of the Elkhart River Basin in Indiana. The study, begun in fiscal year 1971, will require three years. All principal water and related land functions will be studied and a plan formulated. Projects will not be authorized as a result of these studies, but the plan will propose specific projects and programs to be staged over a period of time.

The Elkhart River Basin Study is being managed by a coordinating committee under joint leadership of the State of Indiana and the USDA's Soil Conservation Service. The GLBC staff is represented on the Coordinating Committee by the Executive Director.

The Elkhart River is a portion of Great Lakes Basin Planning Subarea 2.3. Plans developed for the Elkhart River Basin should be useful as a portion of the GLBC comprehensive coordinated joint plan for the area.

Grand River Type 2 Study

The plan formulation appendix and main report of the Grand River Study, Michigan, were in the

process of final drafting at the end of the fiscal year. Two public hearings, held in December of 1970 by a committee of the Michigan State Legislature, provided information regarding status and plans for the Grand River Basin and possible future requirements of the State of Michigan for implementing the plan.

Subsequently, the Plan Formulation Subcommittee was asked to estimate the cost and time required to develop alternative plans minimizing structural developments and emphasizing environmental and water quality enhancement. The Grand River Basin Coordinating Committee decided to develop an addendum to the plan formulation appendix, with the additional work required by Army and other Federal agencies to be funded by the Department of Defense.

The plan formulation appendix with the addendum and the main report were prepared in draft form for review by the Coordinating Committee.

Pere Marquette River Study

This study seeks inclusion of this Michigan river in the National Wild and Scenic Rivers System, to protect and enhance the river's unique quality and maintain the river area in its natural condition. The study, led by the USDA Forest Service, progressed to the stage for classification of the Pere Marquette as provided in Public Law 90-542.

Tentative agreement regarding boundaries for the area, the scenic/recreation classifications, and management and development policies on areas owned or controlled by public agencies was reached at an April 1971 meeting of the Study Task Force. Following policy review by the Michigan Department of Natural Resources and public meetings, recommendations for Wild and Scenic River classification are anticipated early in fiscal year 1972.

GLBC was among agencies reviewing and commenting on the initial management recommendations proposed for the Pere Marquette.

Coordination

Genesee River Basin Study

The final report of the Genesee River Basin Coordinating Committee was accepted for review by GLBC early in fiscal year 1971. This was in keeping with the Commission's responsibility to review, circulate, comment upon, and forward reports on ongoing comprehensive studies within the Great Lakes Basin.

As received, the report is comprised of a summary report and 14 appendixes, as well as a New York State supplement. It presents a plan of structural and non-structural measures for development and use of water and related land resources of the Genesee River Basin. The Coordinating Committee recommends adoption and implementation of its plan.

Besides making its own review, GLBC distributed the report to member States and agencies and the International Joint Commission for their comments. The GLBC report on the Genesee River Basin Study, two addenda, and the report of the Coordinating Committee, were transmitted to the Water Resources Council in February of 1971. The addenda present a summary of the Coordinating Committee report and the environmental impact report required by the National Environmental Policy Act.

Copies of the GLBC report were provided to the Governors of member States, heads of member agencies, and the International Joint Commission.

Maumee River Basin Study

More detailed studies of the Maumee River Basin have been repeatedly requested in recent years by the States of Ohio, Indiana, and Michigan. These requests led to a GLBC proposal that a Type 2 Maumee River Basin Study be initiated in fiscal year 1970. Action on this proposal is summarized here.

The Water Resources Council in August 1970 requested that the proposal be revised to a Level B Study—reflecting a Water Resources Council policy statement dated July 22, 1970—prior to submittal

of the fiscal year 1972 budget to the Office of Management and Budget. A revised budget request, a revised general schedule, and a revised preliminary plan of study were provided.

The change to a Level B study may decrease overall cost of the Maumee River Basin Study by approximately \$200,000. However, to accelerate data collection and analysis, funds requested for the first fiscal year were increased from \$569,000 to \$714,000.

In September of 1970 the Chairman learned that the Maumee River Basin Study would be submitted for a new start in fiscal year 1972 at a level of \$300,000. This reflected budgetary constraints set by the Office of Management and Budget, and the Water Resources Council's new policy that first-year activity should be preparation of an adequate plan of study and a coordinated budget. This study was not included in the President's Budget for fiscal year 1972.

The Commission has resubmitted a request for the study to begin in fiscal year 1973. State agencies have supported initiation of the Maumee River Basin Study with the Office of Management and Budget and in the Congress. The Governors of Ohio and Michigan have endorsed the Study to the President. As proposed, the Study would complement and augment previous planning by State, Federal, and local agencies.

Priorities Report

As a time-and-cost saving alternative to producing a new report, the Commission in 1971 elected to reprint the long-range schedule of priorities first published in 1970. This decision takes into account current Water Resources Council review of format, content, and schedules for such reports, and the expectation that biennial publication will meet the purposes of the priorities reports.

“Each such commission . . . shall prepare and keep up to date . . . a comprehensive, coordinated, joint plan for Federal, State, interstate, local and nongovernmental development of water and related resources . . .”

—Public Law 89-80.

Great Lakes Basin Framework Study

Completion of the Great Lakes Basin Framework Study—to serve as the foundation for a comprehensive, coordinated, joint plan—is the Commission’s principal current project. Progress on this Study, although slowed by current economic restrictions on all planning activities, has been substantial.

The work moves in four overlapping general phases:

- Goals and objectives supportive of the basic national objectives—Economic Development, Regional Development, Environmental Quality—are determined by the Commission.
- Basic data on resources and needs are collected and processed; projections are made for the Study’s target years of 1980, 2000, and 2020; special-purpose plans and programs are drawn. There are 23 Work Groups active in this phase.
- Alternative multiple-purpose programs and measures to solve Basin problems of water and related land resource needs are developed by Plan Formulation Task Forces. Data projections and plans prepared by Work Groups are used and the alternatives offered are consistent with the basic planning objectives.
- Work Group findings are reported in a series of specialized appendixes. Task Force recommendations as finally adopted by the Commission will be published in an appendix.

The Commission staff is involved in each of these somewhat sequential but overlapping phases. Staff participation ranges from overall coordination to Task Force leadership, from technical review and editing of appendix drafts to supervision of report printing.

Publication plans for the Study call for an interim report to appear early in fiscal year 1972. Completion and printing of the full Framework Study is targeted for late in the fiscal year.

Goals and Objectives

Through its staff, the Great Lakes Basin Commission developed an approach to the formulation of broad goals and general objectives, as well as techniques for presenting them to Work Groups and other planners, and for assigning priorities to objectives.

Broad goals are defined as those economically, socially, or politically desirable for a geographic area, as stated by individuals or groups. General objectives are defined as general requirements for performing actions which, when achieved, advance the system toward the broad goals previously defined.

The Appendixes

Of the 24 Framework Study appendixes, two were in an early review stage at fiscal year end and five more were ready for Commissioner review. First drafts of nine others had been reviewed, and eight were being accelerated for first-draft submission.

Virtually all agencies taking part in the study operated under budget and staff limitations in fiscal year 1971. Some agencies were in a position, however, to give high priority to leadership in in appendix preparation. Typical of these appendixes were: Appendix 2, Surface Water Hydrology; Appendix 3, Geology and Ground Water; and Appendix 5, Mineral Resources. These compilations of data and findings were available as needed by the several Task Forces.

Other appendixes—including 22, Aesthetic & Cultural Resources; and 23, Health Aspects—received lower priorities. Preliminary work and assembly of materials has begun on each, and development will be accelerated in the coming year; none warrants reporting at this time.

The scope of Work Group activities in the past year is indicated in the Study appendixes. Highlights are presented in the following sections.

Great Lakes Basin Framework Study

Appendix 4: Limnology of Lakes and Embayments

This is a synthesis of current knowledge of the limnological processes of the Great Lakes, their harbors and embayments, and of upland lakes. Rather than lake-by-lake data arrays, the appendix emphasizes the dynamic interrelationships of the natural processes of these waters as part of the Basin environment.

Subjects, processes, and regions needing further study for resource planning purposes are identified. Existing and potential water resources problems are also defined.

Appendix 6: Water Supply— Municipal, Industrial, and Rural

Projections of water supply needs and availabilities, as prepared by Work Group 6, take full account of current trends encouraging recirculation and reuse of water. Overall, each Lake basin of the Region is seen as having gross water resources more than ample for future demands—given proper resource management and development to match demands of economic and demographic growth.

Recommended means of meeting future needs range from education, by encouraging more moderate consumer use of water, to conservation by storing excess surface waters in depleted underground aquifers. Also recommended is the encouraging of inland dispersal of industry by development of regional water supply facilities. The New York program for inter-municipal public water supply systems is cited as an example of this approach.

Appendix 7: Water Quality

This appendix surveys water quality and pollution control in the Great Lakes Basin in terms of current conditions and influences, future problems foreseen, and recommended solutions. The volume on Lake Huron, first of five to be produced, is typical in scope.

Lake Huron water quality, Work Group 7 reports, is generally excellent—but not uniformly so.

Localities of lower water quality are identified, and both causes and effects are cited. Causes include municipal discharges of untreated or partly treated wastes, industrial waste discharges, and sediment and nutrients carried by rivers into the lake. There are marked chemical, temperature, and turbidity differences between Saginaw Bay waters and those of Lake Huron proper.

The Work Group anticipates continued refinement of data and recommendations in a second draft of this appendix. A factor is the substantial additional input on problems and solutions expected in the proposed United States-Canadian reference to the International Joint Commission for detailed study of water quality in Lakes Huron and Superior.

Appendix 8: Fish

A statistical and analytical review and forecast of the Great Lakes fishery resource, its markets, its problems and their solutions is provided by this appendix.

Mercury contamination is identified as a major problem. Possible solutions are summarized as calling for identification and rigorous control on mercury sources within the Basin; improved monitoring of mercury in fish, aquatic life, and the environment; and expanded research in toxicology, human health hazards, and environmental cycling of mercury.

Preliminary recommendations for the fishery resources include: immediate review of FDA pesticide tolerance levels on fish; application of processing methods that reduce pesticide content in fish; and studies to determine how thermal pollution impacts on aquatic organisms. These studies, in turn, would determine cooling methods requirements for electric power generating plants using Great Lakes water for cooling.

Appendix 9: Commercial Navigation

This aspect of the Framework Study is particularly challenging because overriding needs of the Great Lakes-St. Lawrence Seaway navigation sys-



tem must be considered concurrently with regional needs. Related studies in progress in 1971 include:

- Great Lakes-St. Lawrence Seaway Navigation Season Extension Program—seeking more effective use of existing facilities so as to reduce costs and attract new traffic.
- Deepening of channels, locks, and harbors to accommodate larger, more efficient carriers.
- Great Lakes water levels study related to navigation, power, and shore property damage.
- Lake Erie-Ontario Waterway studies to determine capacity needs for the system.
- St. Lawrence Seaway duplicate locks study, to provide adequate system capacity.

These major studies are yielding the recommendations as to priorities and development programs to be presented in the appendix.

Appendix 10: Power

The Power Work Group presents extensive data and a cohesive text discussing power demands and requirements of the Basin through the year 2020. Current controversy on cooling water use in electric power generation is given ample review. The Work Group finds that the primary requirement to ensure a continuing satisfactory electric power supply for the Great Lakes Basin is the establishment of compatible ecological, environmental, and land use criteria for generating plants.

Clamor for immediate remedy of environmental problems could lead to serious power shortages, the Work Group believes, by disrupting the orderly addition of required capacity. A study to develop acceptable criteria, and legislation based on the findings, is urged as a guide for modification of existing generating plants, redesign of plants not yet in operation, and design of future plants.

Appendix 11: Levels and Flows

International concern on Great Lakes levels and outflows and the involvement of multiple interests—including hydroelectric power, navigation,

water supply, water quality, shore erosion, recreation, and aesthetic and cultural—are emphasized in this appendix. Work Group 11 also notes the many ongoing studies, such as that of the IJC, dealing exclusively or in significant part with water level questions. The regulation schemes, structural and non-structural alternatives, and assessments of economic effects emerging from these studies are of obvious importance to the Great Lakes Basin Framework Study.

The appendix describes numerous means for possible use in effecting desirable levels and flows. Structures, for example, are identified as pertinent to navigation by controlling ice in critical areas, to power generation by ice control near Niagara, to aesthetics by maintaining adequate flow at the American Falls. Suggested non-structural approaches include a permit system for large water withdrawals from the Lakes, modification of weather conditions, and investigation of methods for control of evaporation rates.

Appendix 12: Shore Use and Erosion

Work Group 12 sees the basic problem in planning Great Lakes shoreline use as the need to allocate limited shoreline resources among projected and competing economic, recreational, and environmental demands. In the large urban areas this allocation is already committed, but significant opportunities still remain in rural areas.

In addition to data on shoreline use and development alternatives, the appendix presents an analysis of the nature and extent of shoreline erosion and flooding damages. The analysis covers more than 3,664 miles of U. S. lakeshore and 1,129 miles of inland shore, excluding connecting rivers and the St. Lawrence. One purpose of this analysis is to provide a base for application of shoreline zoning requirements.

Concurrent with the Framework Study appendix, the Work Group in 1971 prepared for the Great Lakes portion of a National Shoreline Study an inventory of erosion and protection needs.

Appendix 13: Land Use and Management

Projecting trends of land use and needs in the Great Lakes Region through 2020, the Work Group concludes;

- Urban and built-up areas will increase slightly in some planning subareas and dramatically in others.
- The agricultural land base is adequate to meet the Region's share of national food and fiber requirements, with more land in agriculture after 2000.
- Forest land acreage will decline with urban expansion.

The Work Group sees improved urban land data and coordination as a primary need for land use planning. Urban and regional information systems, composed of multiple political jurisdictions, are recommended. Also recommended is a local-State-Federal cooperative program of technical assistance on soil and water resource management for urban areas.

Development of a comprehensive land use policy for the Great Lakes Region is proposed. This would be coordinated with any national land use policy such as that recently introduced in the Congress, and State and local policies.

Appendix 14: Flood Plains

This appendix appraises present and future flood problems involving the flood plains of rivers within the Great Lakes Basin. It reflects investigation of flood plain location, land use, and intensity of problems—the latter stated in actual or estimated average annual flood damages. The Work Group notes that:

- Despite added protection works, flood damages are increasing at a rate faster than in the past.
- Encroachment of the flood plains continues without significant change.
- Major flood problems exist in urban and highly developed agricultural areas across the Basin.

In proposing alternative damage reduction

measures, both structural and non-structural, criteria weighed include problem urgency, physical features, existing development, and area needs. Environmental effects of suggested measures hold primary consideration.

The Work Group recommends an accelerated effort to expand and enforce flood plain management programs. Any effort to prevent all flood damages is judged unrealistic by the Work Group who believe an economically justifiable degree of flood protection consistent with environmental considerations and other resource needs can be achieved in flood plain management.

Appendix 15: Irrigation

This appendix deals only with irrigation for crop benefits. Neither its projections nor its proposals include irrigation based on use of sewage effluent, which practice is primarily regarded as a water quality measure yet to be evaluated.

Currently only about one percent of the Basin's total cropland is irrigated. Most of this is by on-farm systems which utilize stream flows as the major sources of supply in the four planning subareas around Lake Michigan. Projections indicate an approximate doubling of irrigated acreage by 2020 with the same general conditions continuing. It is noted that only about four percent of the total potentially irrigable land in the planning subareas considered is expected to be so improved. Maps and supplementary data are provided to identify areas where soil and ground water conditions are most favorable for irrigation development.

The great value of irrigation is identified by the Work Group as improved quality and yield in crops, with increased income to the farmer, without a need for additional high-value land. Water needs are expected to be minimized by high-efficiency operations having equally minimal impact on quality of stream flows and ground water.

Appendix 16: Drainage

Great Lakes Basin agricultural and urban lands with drainage problems—lands whose agricultural



production or use as urban land base is reduced or limited by excess water in the soil profile—are identified in this appendix. The extent and severity of the problem is described for the various planning subareas, with specific data reported for metropolitan areas.

The Work Group finds drainage problems on 12 million acres of Basin agricultural land. Nearly half of this lies in the Lake Erie subregion. The Work Group projects a need for applying local and on-farm drainage measures to 3.3 million acres in the 50 years to 2020 in order to improve farming efficiency and increase productive capacity.

Serious soil wetness conditions are forecast to be problems for urban development in ten metropolitan areas, as demands are projected to 2020. Shortage of available land base is noted for Chicago and Detroit; considerable development on wet soil types is projected for Saginaw-Bay City, Detroit-Ann Arbor, Cleveland-Lorain-Elyria. The Work Group recommends zoning and proper land use management as the prime means for assuring satisfactory urban development on wet soil conditions.

Appendix 17: Wildlife

Habitat needs and other problems related to wildlife in the Great Lakes Basin are reported in this appendix. Also presented are the 23 potential solutions considered by Work Group 17 as means for satisfying projected needs for adequate wildlife. Requirements are forecast on the basis of indicated trends plus such data as hunter use, number of hunting days, and habitat needs measured by acres.

The Work Group sees lack of public access to wildlife areas as the major restriction on hunting and other wildlife-related activities in the Great Lakes Basin. It recommends a program to expand public access. Also recommended are intensified State and Federal programs to acquire public hunting and other recreational rights on lands that can supplement those currently open to public use.

Appendix 18: Erosion and Sedimentation

This study of Basin erosion and sedimentation finds significant differences in average erosion rates in the several planning subareas. It also indicates the likelihood that damages from erosion and sedimentation are far greater than has been generally believed. Beyond the known problem of sedimentation in harbors, the Work Group reports extensive problems relating to health aspects, recreation, and organic sediment and water quality.

The Work Group concludes that conventional programs for erosion control, even if intensely applied, may not reduce sediment levels enough to meet future standards. Among possible solutions, it suggests:

- Programs for minimum tillage and use of cover crops with row crops in agriculture.
- Erosion control ordinances, uniformly applied, in both urban construction and agricultural activities.
- Increased desilting and flocculating facilities in reservoirs, to improve water quality by reducing levels of suspended solids in the water.

Appendix 19: Economic and Demographic Studies

This appendix presents historical data and projections of population, employment, income, and production in the Great Lakes Basin—the determinants of future requirements for water resource development. These future water requirements will be guides in preparation of programs for comprehensive development of water and related land resources to meet Basin needs in a timely and efficient manner. Feedback from the plan formulation phase of the Framework Study will be incorporated in final economic-demographic projections.

Economic and demographic data are developed for current and past periods and their trends shown. Interrelations among the variables are indicated; so are the regional and national economies. The data are based on selected base years

Great Lakes Basin Framework Study

in the 1960-70 period; preliminary projections are for the target years 1980, 2000, and 2020.

To aid other Work Groups in their estimates of future water and related land demands, Work Group 19 projected all needed components of demographic and economic factors for each 10-year period through 2020. Industries which use large amounts of water—those engaged in food, textile, chemical, paper, petroleum, electric power production, and primary metal manufacturing—were separately identified. All estimates were prepared for each of the 15 planning subareas, with population projections in greater detail to permit further breakdown as necessary.

Preliminary projections developed by Work Group 19 are currently under review prior to public release.

Appendix 20: Law, Policies, and Institutional Arrangements—Federal and State

The Federal portion of this appendix reviews basic constitutional clauses governing water resources management, development, and preservation; statutory and case laws pertaining to 14 aspects of water resources; policies of general conservation, development, and use of water; and public institutional arrangements. Essentially similar reviews are presented for each State in the Great Lakes Basin.

The Work Group notes the differences in approach to water resource management and planning, the numerous governments, agencies, and parties assigned powers and responsibilities. It points out both overlap and diffusion of powers and responsibilities as detrimental to efficient planning and management for water resources.

Corrective actions suggested by the Work Group include:

- Consolidation of agencies at all levels to simplify existing water resource organization—to end duplication of functions, to foster grouping of functions, to facilitate coordination of programs.

- Legislation to permit class actions by citizens or local or State agencies—as another means for securing relief from action damaging the environment.
- Screening of all new compounds for industrial or home use—to determine environmental effects before marketing.
- Legislation supportive of protection and proper development for groundwater resources.
- Strengthening of land-related regulatory measures—to permit effective, hand-in-hand management of both water and functional land use.

Appendix 21: Outdoor Recreation

This Work Group foresees demand for outdoor water-oriented recreation activities in the Basin nearly tripling between 1970 and 2020. For six such activities, it found the 1970 level of recreational development capable of satisfying 64 percent of requirements. Levels of development proposed by the Work Group are expected to satisfy 80 percent of estimated recreational needs in 1980 and 2000, and 74 percent of projected 2020 needs.

Greatest recreational demand is seen to be concentrated in the major population centers. But the Basin's most extensive water areas are too distant from the urban centers to be utilized effectively and directly to satisfy this concentrated demand.

The appendix proposes both development and management means for meeting recreation needs. Development opportunities include expansion of existing facilities; new parks near urban areas as well as at reservoirs; acquisition of access sites and harbors on lakes and streams; acquisition of Great Lakes islands; acquisition of land for National, State, and local trails systems. Management opportunities include time and area zoning for use of water surfaces; preservation of scenic, historic, and biotic areas; and enlargement of National and State programs for wild, scenic, and recreational rivers. Encouragement of private-sector development of recreational facilities is also proposed.



Plan Formulation

The difficult task of plan formulation has begun in all portions of the Basin. At the close of fiscal year 1971 formal plan formulation was most advanced in the Lake Erie basin, with one planning subarea essentially complete and another well started. Plan formulation relating to Lakes Superior, Huron, Michigan, and Ontario is in various stages.

State, local, and Federal planning agencies, as well as the Work Groups, are carrying on this work. Formal plan formulation will be finished on schedule only if personnel of State and Federal agencies and the Great Lakes Basin Commission adjust priorities of assignments.



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—Public Law 89-80.

Related Activities

Public Involvement

The Commission endorses broad public participation throughout the planning process. To this end, general guidelines for public involvement have been developed. Basic goals, objectives, problems, or solutions—as analyzed and reported by professional planners—are offered for public discussion.

A public involvement program has been recommended for each planning subarea of the Basin. First-draft technical papers on alternative frameworks would be the base of such programs. Plan Formulation Task Forces would lead these public discussions of planning subarea proposals as they relate to Basin problems, needs, and alternative solutions. The mechanics of these meetings are being worked out by the Commission staff and the member States.

Communicator

July 1970 marked publication of the first of 12 monthly issues of an official public information bulletin, the *Communicator*. On a six- or eight-page mini-format (7" x 9") the *Communicator*, during fiscal year 1971, established itself as a source of Great Lakes Basin Commission information, as well as an instrument for effecting a new dimension of liaison among the Commission leadership, staff, and Commissioners and Work Groups, Task Forces, related professionals, legislators, and the general public.

Textual materials included various combinations of descriptions of the Commission's work and related State and Federal activities, as well as staff and guest technical articles. The *Communicator* served generally to enhance the views and understanding of its readership regarding institutional arrangements, enabling legislation, technical advances, ongoing studies and parallel interests as they concern water and related land resources planning for the Great Lakes Basin.

Over the year's period, circulation increased to 3,800 and is projected to be much larger by the end of fiscal year 1972. On the theory that what

the public doesn't know or understand it cannot support, one of the functions of the *Communicator* is to increase public awareness and resulting public involvement. The goal of increasing public acquaintance with the need for environmental planning in the Great Lakes Basin suggests that the mailing list of the *Communicator* will greatly increase when fiscal budgets permit this to occur. At year end, the number of requests to receive the *Communicator* on a monthly basis was increasing rapidly, indicating a strong public desire to learn more about environmental planning in the Great Lakes Basin.

Great Lakes Basin Library

This library has been designated a Selective Federal Depository Library. As a result, numerous difficult-to-obtain materials dealing with water and related land resources planning are made promptly available without cost to the Commission.

The library was established in 1968 to meet the needs of the Commissioners, their staffs, the GLBC staff, the Work Groups, Task Forces, and other planners, for basic and pertinent reference materials. Topics of concentration are the Great Lakes Basin and the Great Lakes States; water and land in their several resource, use, and management aspects; legislative and planning reports, framework and river basin studies, and similar reference tools. Subject-cataloging and a data bank card index system make all references readily available when needed.

"Each river basin commission shall . . . make such studies and investigations as are necessary and desirable in carrying out the policy . . . and accomplishing the purposes . . . of this Act . . ."

—Public Law 89-80.

Limnological Systems Analysis

The Great Lakes comprise a large complex natural hydraulic system whose physical, chemical, and biological subsystems interrelationships have not been completely analyzed. However, to effectively coordinate planning for water and related land resources of the Great Lakes Basin, the Commission has continuing need for some means of evaluating the potential effects on the Great Lakes themselves of management alternatives proposed and considered in the planning process.

The Commission has decided that a rational means of projecting changes in the Great Lakes under various management strategies is needed and desirable. A two-phase program is addressed to fulfilling this need. The Phase I Study, officially entitled *Limnological Systems Analysis of the Great Lakes: Phase I - Preliminary Model Design*, is a pioneering effort. This Study is designed to specify the required output from and needed input to a proposed mathematical analysis which will integrate existing mathematical models of the physical, chemical, and biological subsystems, define new models to be developed, and insure that projected output will be most relevant to the needs of the Commission and its member agencies.

The proposed models will allow Great Lakes planners to test on the simulated Lakes the effects of contemplated plans quickly at relatively low expense. The models will also provide valuable guidance for research and data collection activities by identifying areas where too much or too little data are being collected, evaluating the frequency of measurements, and identifying those areas where additional scientific research might have the greatest impact on current and projected problems.

The Phase I Study is being performed under contract by an environmental engineering consulting firm and is composed of five main parts. The first involves defining the needs of GLBC member agencies for output from the proposed modeling effort. The second task is a survey of the many agencies, institutions, and organizations which collect and archive Great Lakes data—to identify data sources and determine how availability of

data may limit the proposed modeling effort. The third part of the Study surveys existing models for the various physical, chemical, and biological subsystems in the Lakes—including models developed specifically for the Great Lakes as well as many developed for other bodies of water.

After completion and evaluation of the results of the first three tasks, development of a demonstration model will illustrate to the Commission the utility of several projected levels of modeling to satisfy the needs of the Commission and its member agencies. The final task, following a GLBC decision on the level of modeling to be pursued, will comprise preparation of detail specifications for the Phase II model development program.

The GLBC Limnological Systems Analysis sees the Great Lakes Basin as a complete system for improved long range planning application. This approach is substantially different from that being applied in Sea Grant programs at the University of Wisconsin, the University of Michigan, and State University of New York/Cornell. Those Sea Grant programs look at small portions of the Great Lakes system in great detail. Through close coordination, the GLBC approach, which differs also from that of the forthcoming International Field Year on the Great Lakes, is highly complementary to the other programs.

The contract for the Phase I Study was signed in January 1971. By year's end the contractor had progressed substantially toward identifying needs and problems, data sources, and available models, and model evaluation using a demonstration model of a portion of a Great Lake was imminent. Results of the study should be available at the end of fiscal year 1972.

"In recognition of the need for increased participation by the States in water and related land resources planning to be effective, there are hereby authorized . . . grants to States to assist them in developing and participating in the development of comprehensive water and related land resources plans." —Public Law 89-80.

The Great Lakes States

Each of the eight States of the Great Lakes Basin is actively participating in the Framework Study and other work of the Commission. In addition, several are contributing to similar activities of other river basin commissions. All are simultaneously developing their State plans and programs for comprehensive water resource management.

The following reports by the several States present highlights of fiscal year 1971 activity impacting upon water and related land resources planning.

Illinois



Richard B. Ogilvie, Governor

The Illinois Water Survey Division of the Department of Registration and Education is currently studying the potential of recharge of sandstone aquifers utilizing effluents from tertiary waste treatment plants.

In fiscal year 1971 the Natural Resource Development Board established a projects task force of professionals from each member agency to review and report on Federal natural resource planning; environmental impact statements on resource, highway, and airport projects; and State planning and project development related to natural resources.

Among other State activities the Institute of Environmental Quality is conducting various types of environmental research in northeastern Illinois.

Basin water quality plans required by the Federal Environmental Protection Agency under the 1970 Quality Act and its subsequent modifications are being developed by the Environmental Protection Agency.

The Division of Waterways, Department of Public Works and Buildings, was designated by the Legislature as the agency to monitor and regulate Lake Michigan water withdrawal in keeping with Supreme Court requirements for these withdrawals by Illinois.

With the Metropolitan Sanitary District, the Soil Conservation Service is conducting a Type IV study in northeastern Illinois, southeast Wisconsin, and northwest Indiana.

The State of Illinois participated in several task forces of the Great Lakes Basin Framework Study in fiscal year 1971 as well as the deliberations of the International Joint Commission on pollution control in the Great Lakes.

During fiscal year 1972, the Natural Resource Development Board, as directed by statute, will make its biennial assessment and report on Illinois water resource problems. The Conservation Department is updating the State recreation plan to meet requirements of the Federal Bureau of Outdoor Recreation by June of 1972.

Indiana



Edgar R. Whitcomb, Governor

A Type IV study on the Elkhart River basin was actively supported by the State of Indiana during fiscal year 1971. Indiana is performing the study in cooperation with the U.S. Soil Conservation Service, the principal Federal agency involved. Completion is expected in 1973.

By Executive Order, the Environmental Coordination Commission and Advisory Council were established. The Commission has overall responsibility for analyzing, evaluating, and coordinating



public and private efforts for maintaining and improving the ecology of the State.

The Department of Natural Resources established a procedure for review of environmental statements for all Federal-State projects. In the field of pollution control, legislation was enacted barring dumping of trash on any public property, including streams and lakes. Legislation banning open dumps became effective, as did legislation controlling open burning of refuse.

On a Statewide basis the Department of Natural Resources published "The Indiana Outdoor Recreation Plan, 1970-1975" and initiated a stream fishery inventory.

The Federally subsidized Flood Plain Insurance Program was initiated during 1971 and several communities submitted applications to participate.

Indiana continued its roles in Work Groups and other aspects of the Great Lakes Basin Framework Study as well as the development of an Indiana State Water Plan.

Michigan



William G. Milliken, Governor

This was a significant year for environmental programs in Michigan, particularly for water resource management. A Wild Rivers Program was enacted, as was the Shoreland Management Program, both with provisions for State backup of local zoning actions. The Vessel Pollution Control Act, requiring on-board retention of sewage by commercial vessels as well as recreational watercraft, won nearly unanimous approval by the Legislature. Passage of a "Truth in Pollution Statute" strengthened water pollution control in

the areas of enforcement, information data collection, and financing.

Governor Milliken instituted a State Environmental Impact review procedure. This requires each State agency to review all its major activities to determine their effects on the environment.

Specific attention was directed during fiscal year 1971 to Michigan's Shorelands Protection and Management Program. A comprehensive inventory of all Great Lakes shoreline features has been entered on county maps. In addition, a complete photographic inventory of the shore is now available. An engineering study will identify high risk shoreland erosion areas, determine protection best suited for each, and recommend management programs needed for most appropriate use of these erodible areas.

Michigan's Clean Water Bonding Program accelerated construction of numerous sewage treatment projects and collecting sewer projects. The municipal pollution abatement campaign now in progress under the Water Resources Commission is several times the size of the State's highway program.

Minnesota



Wendell R. Anderson, Governor

Minnesota, during fiscal year 1971, published the third in a series of bulletins leading to development of a comprehensive framework plan for water and related land resources of the State. Leadership in preparing the planning document was provided by the Task Group of the Water Resources Coordinating Committee. This third publication identifies existing and possible future (1970 to 2020) problems. It describes resource programs

The Great Lakes States

and projects suggested by Federal-State regional planning organizations and reviews the time table, planning policies, and costs associated with these programs and projects. The study presents alternative programs and projects from a State viewpoint. It discusses environmental concern and Federal cost sharing in selecting programs and projects. It delineates information deficiencies and State planning policy questions.

Under the 1969 Flood Plain Management Act, counties, cities, and villages were given the responsibility to adopt and administer flood plain management ordinances, following determination of flood plain and floodway areas within their jurisdictions.

Within the year's comprehensive planning activities Minnesota:

- Supported the river basin commissions in preparation of alternative plans to provide multiple choices for resource development.
- Assisted in development of institutional arrangements toward a Great Lakes U.S.-Canadian pollution control board for coordinated water quality control actions to have direct representation by States and Provinces.
- Initiated recommendations for new Federal funding policies for river basin commissions.
- Undertook policy-level review of functional appendices produced by the four river basin planning organizations operating in Minnesota.
- Initiated a study of basic data to support a comprehensive water and related land resource planning program including 50-year projections.
- Began a study of planning policy initiatives resulting from the 1971 session of the State legislature.

In Minnesota, the Water Resources Coordinating Committee is the State mechanism for coordinating water and related land resource planning with work done under Federal grant programs. The Environ-

mental Planning Director and the Water Resources Planning Director can insure proper coordination and full use of State personnel and facilities.

Next year the Water Resources Coordinating Committee will begin formulating the framework plan containing program and project priorities for the State. A fourth bulletin in its planning series will indicate needed investigations, special studies, and data collections necessary as a base for the framework plan. This publication can be completed within two years following publication of policies to guide the planning activities. These are still in the formative stages.

New York



Nelson A. Rockefeller, Governor

Planning by the Department of Environmental Conservation progressed significantly during the first nine months of fiscal year 1971 toward formulation of regional plans for development and management of water and related land resources throughout the State. Federal-State, interstate, and regional water resources board planning continued to place emphasis on environmental quality objectives, while retaining concern for regional development goals. During the last three months of the fiscal year, progress was slowed due to drastic budget cuts.

The Erie-Niagara Board, one of the State's 11 regional boards, completed its comprehensive basin plan, and a public hearing on the plan was held June 29, 1971. Eight Boards are well on the way to development of plans; two have taken preliminary steps toward plan formulation.

At year end a tentative plan for the Oswego basin is under review by the four regional boards concerned. Of major importance is a multipurpose



lake level regulation scheme. Identification of needs and capabilities is underway for the Genesee River basin.

Twelve technical investigations for Regional Board studies were initiated in cooperation with the U.S. Army Corps of Engineers using Federal funds. Project planning studies for Sandridge Reservoir in the Erie-Niagara basin and Stannard Reservoir in the Genesee River basin were joint Federal-State efforts during the year. New York's involvement in other Federal-State efforts includes the North Atlantic Regional Water Resources Study (NAR) and the Northeastern United States Water Supply Study (NEWS). Long-range water supply investigations for six upstate areas in New York are underway through NEWS.

In the cooperative program with the U.S. Soil Conservation Service for improvement of small watersheds, construction of one project was completed, one project was approved, planning assistance was approved for two others, and three work plans were completed.

Other major staff responsibilities during the year were: review of project environmental impact statements, State public water supply and comprehensive sewerage studies, Office of Management and Budget Circular A-95 reviews, and Housing and Urban Development 701 programs.

Scheduled for fiscal year 1972 is completion of plan formulation and report preparation for four planning subareas of the Great Lakes Basin in New York State. Regional Board studies at the Type II level will continue at a slower pace for Planning Subareas 5.1 and 5.3, and a Board plan for PSA 5.2 (Oswego River basin) is scheduled for completion. It is anticipated that comprehensive water resources planning will continue within a new departmental framework to encompass all aspects of environmental planning.

Studies scheduled to be initiated relate to possible diversion of two southern streams around

Oneida Lake to reduce algae growth and to retard eutrophication.

Ohio



John J. Gilligan, Governor

In fiscal year 1971 Ohio continued to progress with the concept of regional water planning. By year end the Northeast Water Development Plan was 95 percent complete. This is the second of five proposed 50-year regional water development plans. With the northwest plan (1967) and the northeast plan the State's entire Lake Erie drainage area will be covered. The central, south-east, and southwest plans are currently being designed. Ohio's investigation into water development of the regions is in close cooperation with Great Lakes Basin Framework Study groups.

Other Ohio activities in the Lake Erie drainage area were: completion of the groundwater study for northeast Ohio; completion of the interim water quality river basin plans for the Grand, Ashtabula, Cuyahoga, Huron, Vermillion, Black, and Sandusky Rivers; formation of a council of 96 northeast Ohio residents and State and Federal government representatives to assist in the area's water plan; a study of the Maumee River for possible State and Federal scenic river status; a study of the Grand and Upper Cuyahoga for possible State scenic river status.

To help prevent further deterioration of Lake Erie, the Corps of Engineers has initiated a dredging disposal program. In the future, contaminated spoil from the ten largest harbors of Lake Erie will be deposited in contained areas. The Ohio Department of Natural Resources is aiding in selection of disposal sites.

The Great Lakes States

Pennsylvania



Milton J. Shapp, Governor

Water resource planning activities in fiscal year 1971 were concentrated in continued development of Pennsylvania's State Water Resources Plan, and participation in six regional planning studies.

For the State Water Resources Plan, work completed and reports published were: Water Resources Inventory No. 1, "Dams, Reservoirs, and Natural Lakes in Pennsylvania;" inventories of Statewide water consumption and potential flood damages; computer model for population allocation in hydrologic zones; and the report, "Framework Objectives for the State Water Resources Plan."

Activities were continued toward completion of inventories for groundwater availabilities and for fish species and habitats. These included inter-agency coordination efforts toward water quality management planning in conjunction with the State Water Resources Plan and as specified by the Environmental Protection Agency, beginning with Pennsylvania's portion of the Lake Erie basin.

Planning activities in fiscal year 1972 will continue in the two general areas mentioned. Comprehensive plans for river subbasins will be initiated for the continued development of the State Water Resources Plan and will include local public involvement in plan formulation processes. Urban areas will be given priority to expedite the development of interim water quality planning for the Federal Environmental Protection Agency. Comprehensive plans for major river basins will be developed from those of the subbasins, and the Statewide plan will come from those of the major basins.

Wisconsin



Patrick J. Lucey, Governor

Wisconsin's Department of Natural Resources significantly broadened its comprehensive planning activities during fiscal year 1971. Major activities included: publication of "A Prospectus for Wisconsin Water Resources Planning"; preparation of interim basin plans for certification of Federal Environmental Protection Agency construction grants for municipal waste treatment facilities; preliminary preparations for a Wisconsin Water Resources Planning Data Network to include economic, demographic, and cost analysis projections, and standard locator codes.

Other accomplishments included preparation of a layman's guide entitled "A Basic Guide to Water Rights in Wisconsin;" 96 percent completion of the flood plain ordinancing program; initial installation of fixed water quality monitoring stations in the Fox and Wisconsin Rivers; and a great deal of cooperative planning through the Great Lakes Basin Commission.

Looking toward fiscal year 1972, Wisconsin is strongly emphasizing a balanced and well-integrated planning program. Significant programs scheduled call for: development of a State concept plan, using a systems analysis to relate air, solid wastes, and water resources management planning; activation of general cost analysis of water and sewage rates; preparation of final basin plans for 35 river basins, to meet Federal EPA guidelines by 1973; and publication of the Department of Natural Resources Program Plan.

"The commission shall keep accurate accounts of all receipts and disbursements. The accounts shall be audited at least annually . . . and the report of the audit shall be included in and become a part of the annual report of the commission."
 —Public Law 89-80.

Finances

LINSCHIED & AUSTIN
 CERTIFIED PUBLIC ACCOUNTANTS
 SUITE 416 PEOPLES BANK WATER STREET BUILDING
 PORT HURON, MICHIGAN 48060

November 3, 1971

Great Lakes Basin Commission
 City Center Building
 220 East Huron Street
 Ann Arbor, Michigan 48108

We have examined the financial statements of the General Fund and the Plant and Equipment Fund of the Great Lakes Basin Commission for the year ended June 30, 1971. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying balance sheets and statement of reserve for future appropriations present fairly the financial position of the General Fund and the Plant and Equipment Fund of the Great Lakes Basin Commission at June 30, 1971, and transactions affecting the reserve for future appropriations for the year then ended in conformity with generally accepted accounting principles applied on a basis consistent with the preceding year.

Linschied & Austin
 Certified Public Accountants

BALANCE SHEET — GENERAL FUND

June 30, 1971

Assets

| | |
|--------------------------|---------------------|
| Cash | \$166,997 |
| Advances and deposits | 5,252 |
| Prepaid expenses | 2,419 |
| Grants receivable: | |
| United States Government | \$10,000 |
| State of Wisconsin | 45,000 |
| State of Minnesota | 5,000 |
| | <u>60,000</u> |
| Less allowances | <u>5,000</u> 55,000 |
| | <u>\$229,668</u> |

Liabilities and Reserve for Future Appropriations

| | |
|-----------------------------------|------------------|
| Accounts payable | \$ 5,278 |
| Reserve for encumbrances | 60,000 |
| Accrued payroll | 4,996 |
| Reserve for retirement plan | 2,413 |
| Payroll taxes | 2,986 |
| Total Liabilities | <u>75,673</u> |
| Reserve for future appropriations | 153,995 |
| | <u>\$229,668</u> |

BALANCE SHEET PLANT AND EQUIPMENT FUND

Assets

| | |
|-------------------------|------------------|
| Furniture and equipment | \$ 21,898 |
| Library books | 12,807 |
| | <u>\$ 34,705</u> |

Source of Funds

| | |
|---------------------------------|-------------|
| Appropriations for unrestricted | \$ 34,705 |
| General Fund revenues | <u> </u> |

Finances

RESERVE FOR FUTURE APPROPRIATIONS GENERAL FUND

Balance at July 1, 1970 \$269,941

Revenues:

| | | |
|------------------------------|----------------|----------------|
| United States | | |
| Government grants | \$160,000 | |
| State government grants | <u>180,000</u> | |
| | 340,000 | |
| Provision for loss of grants | <u>5,000</u> | 335,000 |
| | | <u>604,941</u> |

Expenses:

| | | |
|--|--------------|------------------|
| Salaries and wages | \$212,749 | |
| Payroll taxes | 6,038 | |
| Retirement annuities and disability insurance | 13,937 | |
| Hospitalization insurance | <u>8,966</u> | 241,690 |
| Annual report | | 7,900 |
| Public education | | 16,960 |
| Accounting and legal | | 4,200 |
| Contractual services | | 2,093 |
| Equipment rental | | 14,243 |
| Insurance | | 513 |
| Limnological systems analysis - Phase I contract | | 60,000 |
| Library: | | |
| Salaries | 12,195 | |
| Books | 2,786 | |
| Expenses | <u>868</u> | 15,849 |
| Furniture and equipment | | 4,774 |
| Meetings and conferences | | 4,643 |
| Printing and reproduction | | 16,063 |
| Repairs and maintenance | | 1,248 |
| Rent | | 25,041 |
| Supplies and postage | | 6,915 |
| Telephone and telegraph | | 7,945 |
| Travel | | 20,810 |
| Miscellaneous | <u>59</u> | 450,946 |
| BALANCE AT JUNE 30, 1971 | | <u>\$153,995</u> |



The Year Ahead

The events and accomplishments of fiscal year 1971, trends developed during the year, and schedules for next-phase segments of ongoing work provide a base for forecasting the year ahead. The Great Lakes Basin Commission's expectations for fiscal year 1972 include:

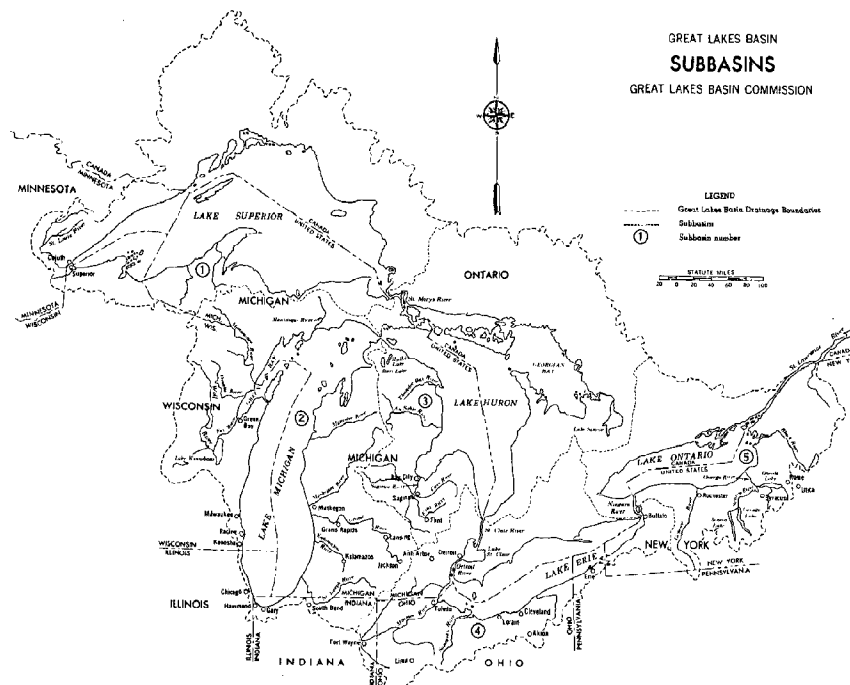
- Close cooperation with the International Joint Commission and the U.S. State Department in activities leading to an international agreement on water quality in the Great Lakes-St. Lawrence River boundary waters.
- Economic stringencies leading to a decreased participation by the several States in the work of Basin planning, possibly to the point of a more-than-desirable utilization of the Commission staff in plan formulation.

(The earliest practicable completion of the Framework Study, however, remains a Commission target and commitment.)

- Intensified staff coordination of ongoing reviews for comprehensive studies, such as

those for the Grand River and the Elkhart River.

- Preparation of a new report on long-range schedules of priorities for Basin resource programs and studies.
- Greater participation in national water policy development through closer cooperation with the Water Resources Council and State and Federal water officials.
- Completion of Phase I of the Limnological Systems Analysis Study, and decisions on the intensity and level of the Phase II mathematical modeling.
- Initiation of more intensive studies on specific problem areas—such as the Maumee River Basin—following completion of the Framework Study.
- Long-range planning of additional steps for the earliest practical production of a comprehensive coordinated, joint plan.



Great Lakes Basin Commission



City Center Building
220 East Huron Street
Ann Arbor, Michigan 48108



Membership

Frederick O. Rouse, Chairman
Clifford H. McConnell, Vice Chairman

Federal Agencies

Department of Agriculture
Department of the Army
Department of Commerce
Environmental Protection Agency
Federal Power Commission
Department of Health, Education, and
Welfare
Department of Housing and Urban
Development
Department of the Interior
Department of Justice
Department of State (pending)
Department of Transportation

States

State of Illinois
State of Indiana
State of Michigan
State of Minnesota
State of New York
State of Ohio
Commonwealth of Pennsylvania
State of Wisconsin

Interstate Compact

Great Lakes Commission